

# 2024 MAPS Ambassador Alliance

Digital, Advanced Analytics  
& Artificial Intelligence (AI)  
in Medical Affairs

DISCLAIMER:

The opinions expressed here are those of members of the  
MAPS Ambassador Alliance and do not necessarily represent  
the perspectives of their respective companies.

The Medical Affairs Professional Society (MAPS) is pleased to share our 2024 Digital, Advanced Analytics and Artificial Intelligence (AI) in Medical Affairs report. This report is based on findings from ~32 leading organizations representing the Pharmaceutical, Biotech, and Medical and Diagnostic Device sectors, and reflects broad leadership thinking about the current and future states of Medical Affairs (MA) AI capability and challenges.

**Survey design and analysis:** Boston Consulting Group led the preparation, execution and analyses of the GenAI survey and moderated the Ambassador GenAI and Advanced Analytics workshop during the MAPS conference on March 24th, 2024

**Survey respondents:** 34 representatives from ~32 companies responded to our survey.

## Participating companies:

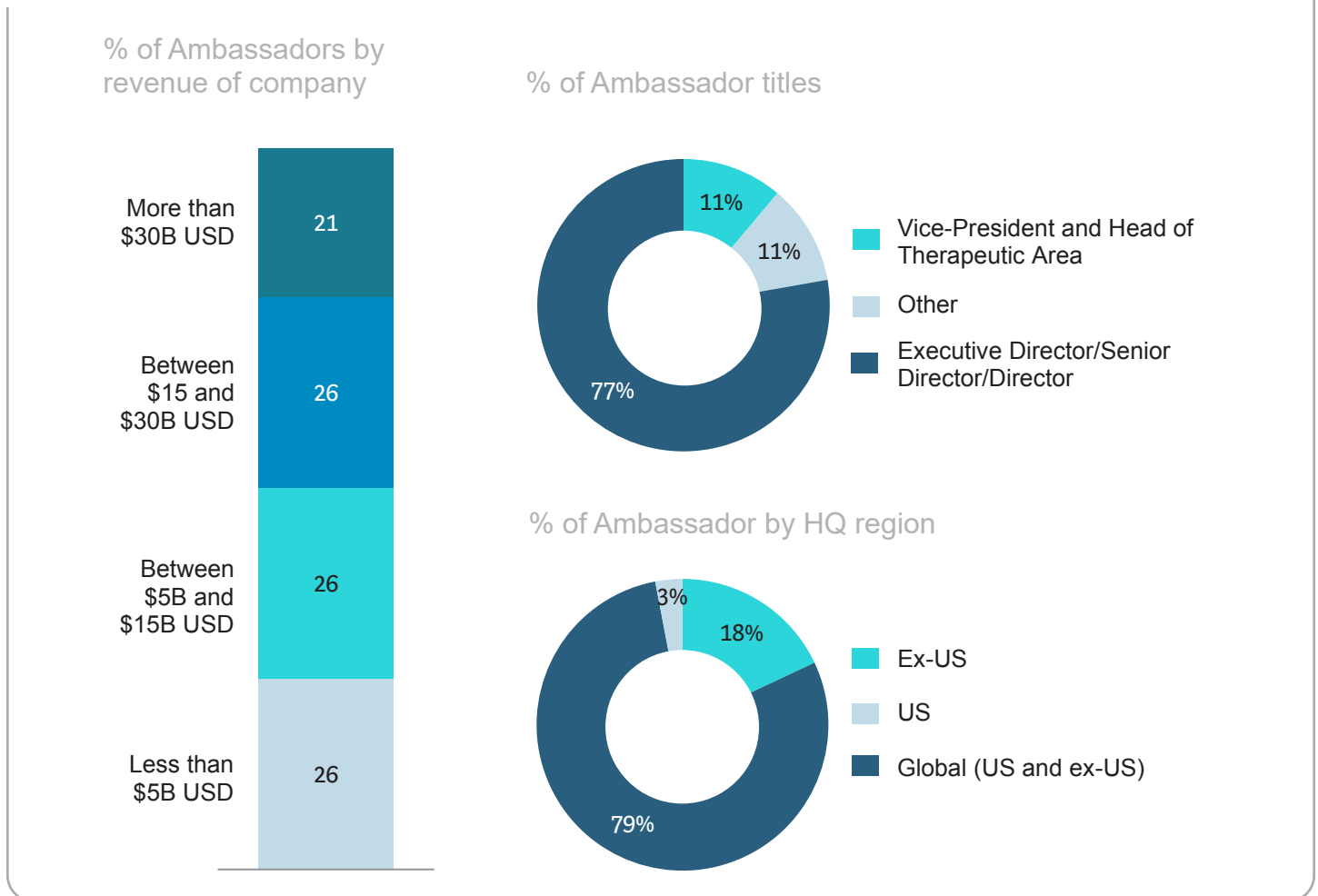
- 3M
- Abbott
- AbbVie
- Amgen
- Astellas
- AstraZeneca
- Baxter
- Bayer
- BioMérieux
- BioNTech
- Bristol Myers Squibb
- Eisai
- Eli Lilly
- Gilead
- Ipsen
- Jazz Pharmaceuticals
- Kyowa Kirin
- Lundbeck
- Mallinckrodt
- Merck & Co
- Mundipharma
- Novartis
- Otsuka
- Regeneron
- Sanofi
- Sumitomo Pharma
- Takeda
- Teva
- UCB
- Varian
- Vertex
- Viatrix

# Digital, Advanced Analytics, and Artificial Intelligence in Medical Affairs Survey Results

## Respondent Demographics

Represented organizations are fairly equally distributed between segments divided at the 5B, 15B, and 30B USD revenue marks with medium/large companies (>~15B USD in revenue) accounting for ~47% of represented MA professionals. Most ambassadors sampled are in various levels of director roles with global remit.

**Exhibit 1 |** Demographic by company size, role and HQ region



## Executive Summary of Insights

This report summarizes results of the 2024 Medical Affairs Digital, Advanced Analytics and AI survey, reflecting 34 completed responses. This survey was fielded to inform a discussion at the 2024 MAPS Ambassador workshop on the current and future state of Digital, Advanced Analytics and AI in MA.

### Key insights:

- **Current State of Digital, Advanced Analytics, & AI tools adoption:** Most respondents are primarily leveraging traditional rather than advanced analytical tools across the range of MA functions from medical education to regulatory activities. This represents a significant opportunity for digital transformation as Medical Affairs embraces and drives use of Generative AI (GenAI).
- **Expected Impact of Advanced Analytics / GenAI on Medical Affairs:** As this progression towards advanced capabilities in data analytics and scientific content creation happens, respondents expect starkest impacts to be on customer insights, evidence generation, and medical communication.
- **Key Challenges in Digital Adoption:** In identifying the opportunity to progress towards their own digital objectives and expectations, Medical Leaders highlighted concerns on internal skills, capacity, legal and regulatory challenges, and data access/availability, among others. Overcoming these challenges will require significant upskilling in AI and analytics, and the ability to nimbly navigate the shifting stakeholder landscape. However, MA Leaders' perceive positive alignment in support of digital goals and organizational agility with respect to future progression in this area












































## Digital Maturity

At present, MA teams continue to leverage traditional digital approaches while the maturity and use of more advanced tools remains low, especially across communication tools, regulatory activities, and evidence generation. More than half of respondents do not currently utilize automated chatbots for Health Care Professional (HCP) engagement and only half stated deploying social media for patient engagement and personalization support. Regulatory activities also have room for automation and digital transformation.

More than half of MA organizations are not leveraging advanced tools for data privacy/security and medical, legal, and regulatory review (MLR) automation. In the area of evidence generation and education, just ~10% of respondents use GenAI for medical evidence and education purposes.

Furthermore, half of MA organizations do not use natural language processing (NLP) for literature review or big data for clinical trial interpretation. This current state represents a significant opportunity for MA to advance and modernize their organizations.

**Table 1 | MA continues to leverage traditional digital approaches, and maturity of more advanced tools within their respective organizations remains low**

 High  Medium  Low  Very Low	Frequency of Use (Q1.1)	Maturity (Q1.3)
 Emails with HCPs		
 Online Medical education		
 Personalization support		
 Conducting e-events		
 Social Media for patient engagement		
 Regulatory intelligence compliance & documentation		
 Insight generation through NLP of large volumes of scientific literature		
 Chatbots with HCPs		
 MLR automation		
 GenAI assist with data privacy and security		
 Scientific content creation with GenAI		
 GenAI RWD/E data analysis enhancement		
 Clinical trial big data interpretation		

High = >50% "Using on a daily/weekly basis" / "Advanced", Medium = >50% "Using on a daily/weekly basis" or "Sometimes using" / "Advanced" or "Somewhat advanced", Low = >50% "Sometimes using" or "Not using" / "Somewhat advanced" or "Not advanced", Very low = >50% "Not using" / "Not advanced"

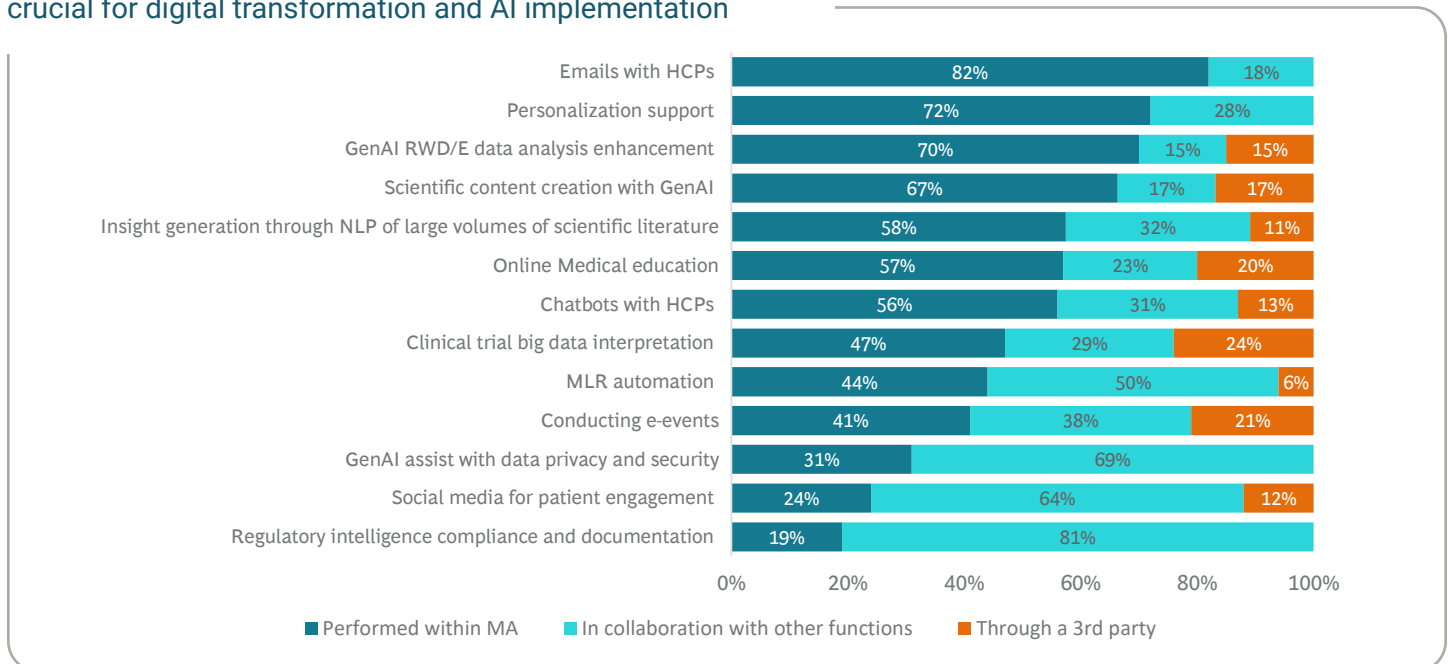
**Q1.1** What digital channels and analytical capabilities is your MA organization leveraging, and how frequently is your MA organization using them?

**Q1.3** What is the level of maturity of each of the digital channels and analytical capabilities within your MA organization?

## Medical Affairs' Role

Medical teams continue to drive the use of more traditional tools (e.g., emails with HCPs, online medical education) within their own function, but they are also acting as driving forces for movement toward more advanced capabilities (e.g., GenAI for data analysis and scientific content creation). For regulatory capabilities (i.e., MLR automation, data privacy and security, overall regulatory intelligence), however, MA teams collaborate with other business units or 3rd parties.

### Exhibit 2 | Efficient collaboration across stakeholders will be crucial for digital transformation and AI implementation








Q1.2 For each digital channel and analytical capabilities you are leveraging, what is MA's role?

## Priority Stakeholders

Most MA respondents agree that Key Opinion Leaders (KOLs) are the highest priority for their increased digital investment (~59% ranking KOLs as their number one priority). HCPs are number one or two priority for 74% of respondents. Patients and payers were also commonly prioritized as a top three priority stakeholder, and only ~15% of leaders would include patients' advocacy groups in their top three interest groups for focused investment.

**Table 2 | KOLs and HCPs are most prioritized stakeholders for digital investment**

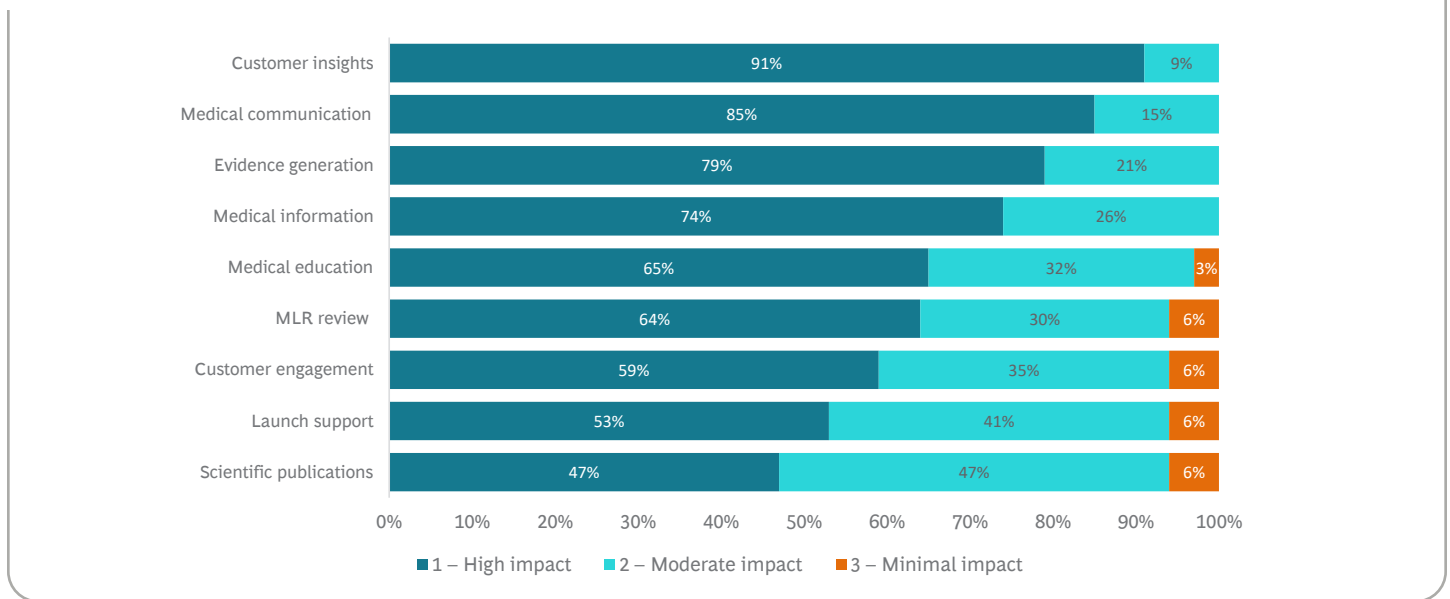
Most prioritized stakeholders	Others
 <p><b>KOLs</b> Most Medical Leaders (59%) rank KOLs as n. #1 priority for increased digital investment</p>	 <p><b>Patient</b> Half of the respondents (50%) rank Patients in their top 3 priorities for increased digital investment</p>
 <p><b>HCPs</b> 3 out of 4 Medical Leaders (74%) rank HCPs in either #1 or #2 priority for increased digital investment</p>	 <p><b>Payers</b> 2 out of 5 Medical Leaders (39%) rank Payers in their top 3 priorities for increased digital investment</p>
	 <p><b>Patients' Advocacy Groups</b> 1 out of 10 Medical Leaders (15%) ranks Patients' Advocacy Groups in their top 3 priorities for increased digital investment</p>

**Q1.4 Please rank the following stakeholders to show who you plan to prioritize for increased digital investment (financially) over the next 1-2 years?**

## Areas of Impact

Similarly, at least 8 out of 10 Medical Leaders expect digital, advanced analytics, and AI to have a high impact on customer insights generation, Medical communication, and evidence generation. Leaders almost universally expect AI to have an impact on every MA area of work discussed. Scientific publications are expected to be the least impacted by digital and AI tools.

**Exhibit 3 | Customer insights, evidence generation and medical communication seen as the most disrupted areas by digital & AI**



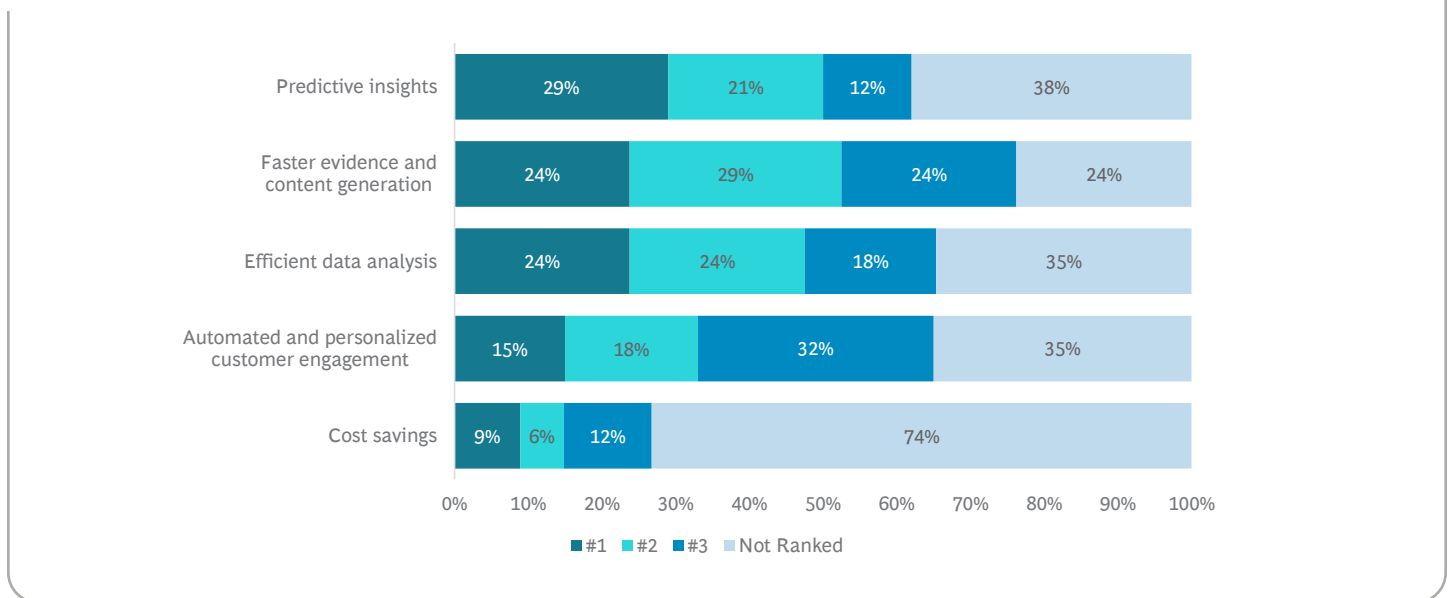
**Q1.5 What areas of work in MA do you expect to be majorly impacted by digital/advanced analytics and AI?**



## Key Objectives

Specifically with GenAI and Machine Learning (ML), MA Leaders foresee their three major objectives to be around driving more predictive insights (which approximately 1 in 3 of those surveyed rank as their #1 objective), faster evidence and content generation, and more efficient data analysis (each ranking in most leaders' top three objectives).

### Exhibit 4 | Predictive insights and content generation are seen as key applications of GenAI/ML capabilities

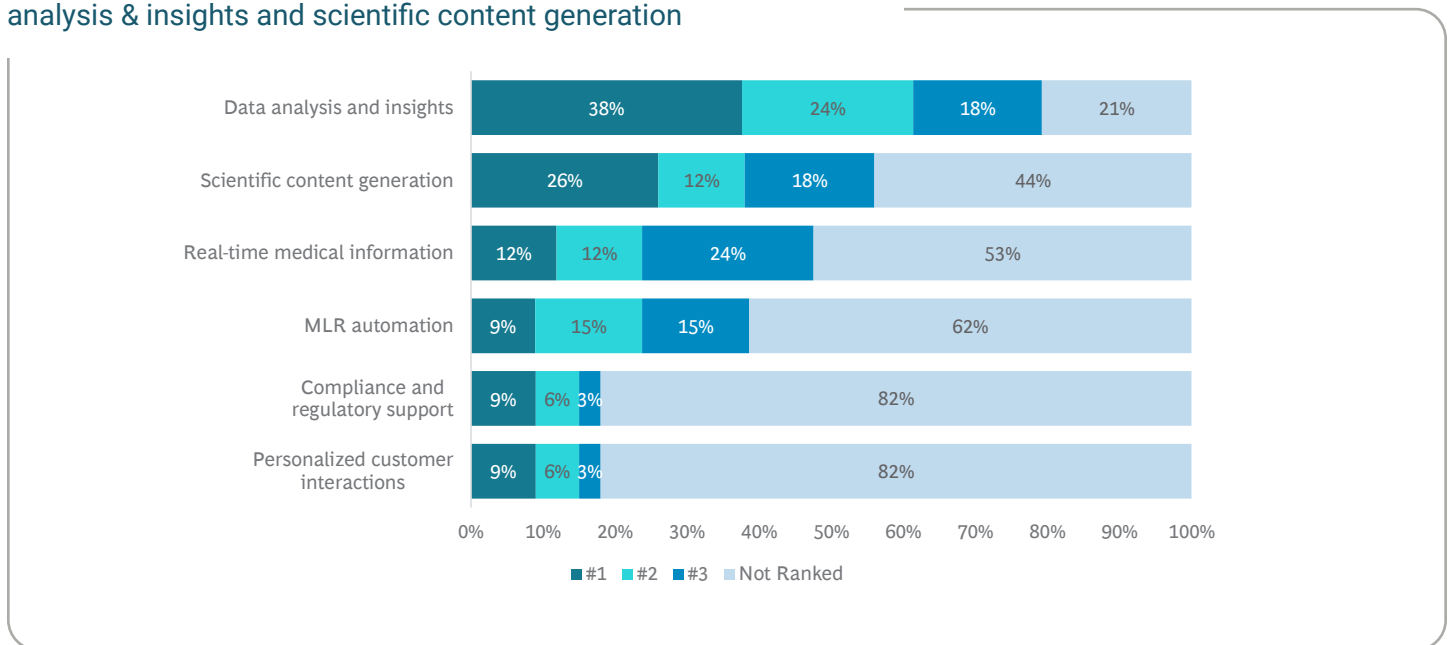


Q1.6 What are your top three objectives for using GenAI/ML capabilities?

## Key Capabilities

Beyond objectives, most Medical Leaders believe highest priority GenAI and ML use cases include data analysis and insights and scientific content generation. Nearly half of respondents also expect to use Gen AI/ML for real-time medical information. Only ~1 in 5 of those surveyed expect it to be used for compliance and regulatory support, or more personalized customer interactions.

**Exhibit 5 | MA organizations will leverage GenAI/ML for data analysis & insights and scientific content generation**

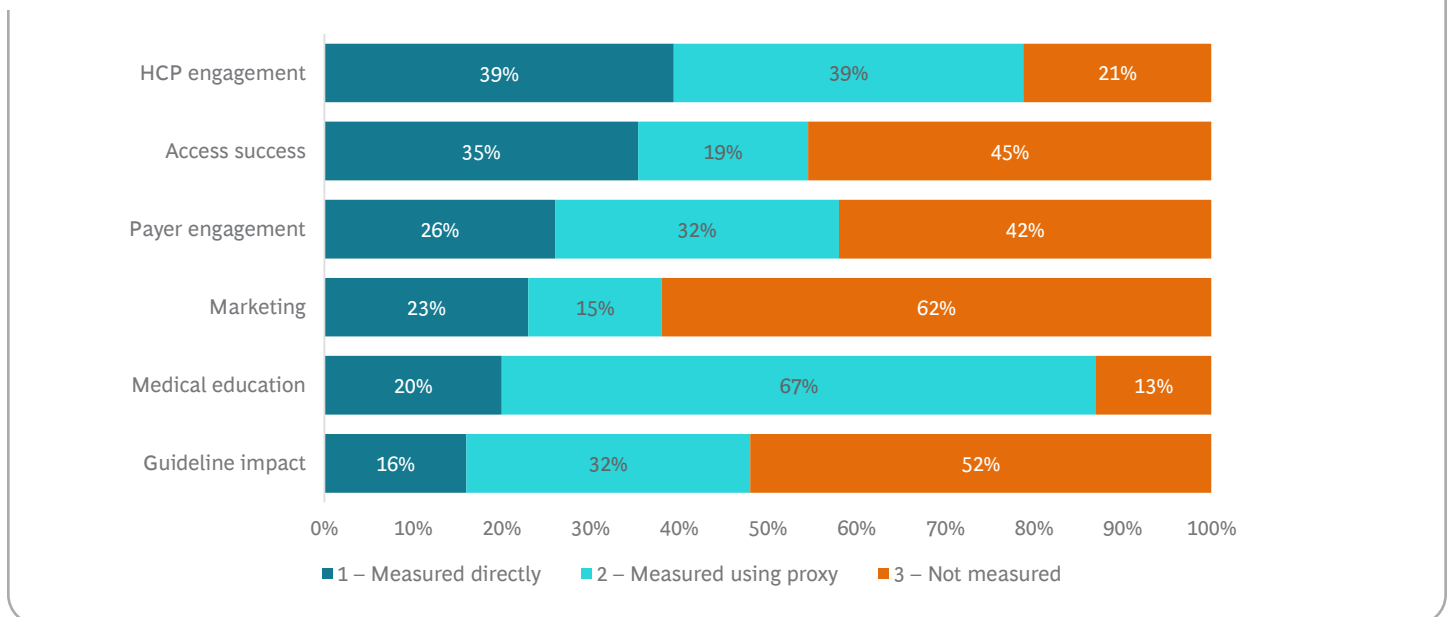


**Q1.7 What are the top three GenAI/ML capabilities you expect your MA organization to use?**

## Return On Investment

Among MA organizations, there is a relatively high level of variation in whether and how teams measure the return on investment for their digital engagement activities. Overall, a low number of organizations measure ROI directly. For example, ~39% of leaders report measuring ROI on HCP engagement directly and an equal number indirectly. Only ~1 in 5 MA teams track ROI on medical education directly and almost half of respondents do not measure ROI on payer engagement at all.

**Exhibit 6 |** The ROI for several digital engagement activities is not measured, leaving ample space for improvement









**Q1.8 How does your Medical Affairs organization measure the return on investment (ROI) for the following digital engagement activities?**

## Challenges and Barriers

Medical Leaders perceive multiple internal and external barriers limiting advancement of digital/AI initiatives. More than 80% of respondents believe that the lack of internal capabilities and capacity within their MA organizations creates challenges for adoption and integration of digital capabilities. Furthermore, they recognize legal and regulatory challenges as a significant barrier to progressing these initiatives. Finally, they often believe that limited data quality and availability, and proper tooling availability limit the opportunity to implement and optimize these solutions. While these challenges can be daunting, there is no perceived lack of leadership endorsement, vendor capability, or stakeholder acceptance to slow efforts to overcome them.

**Table 3 | 6 key internal and external barriers limiting the adoption of digital/advanced analytics capabilities within MA organizations**

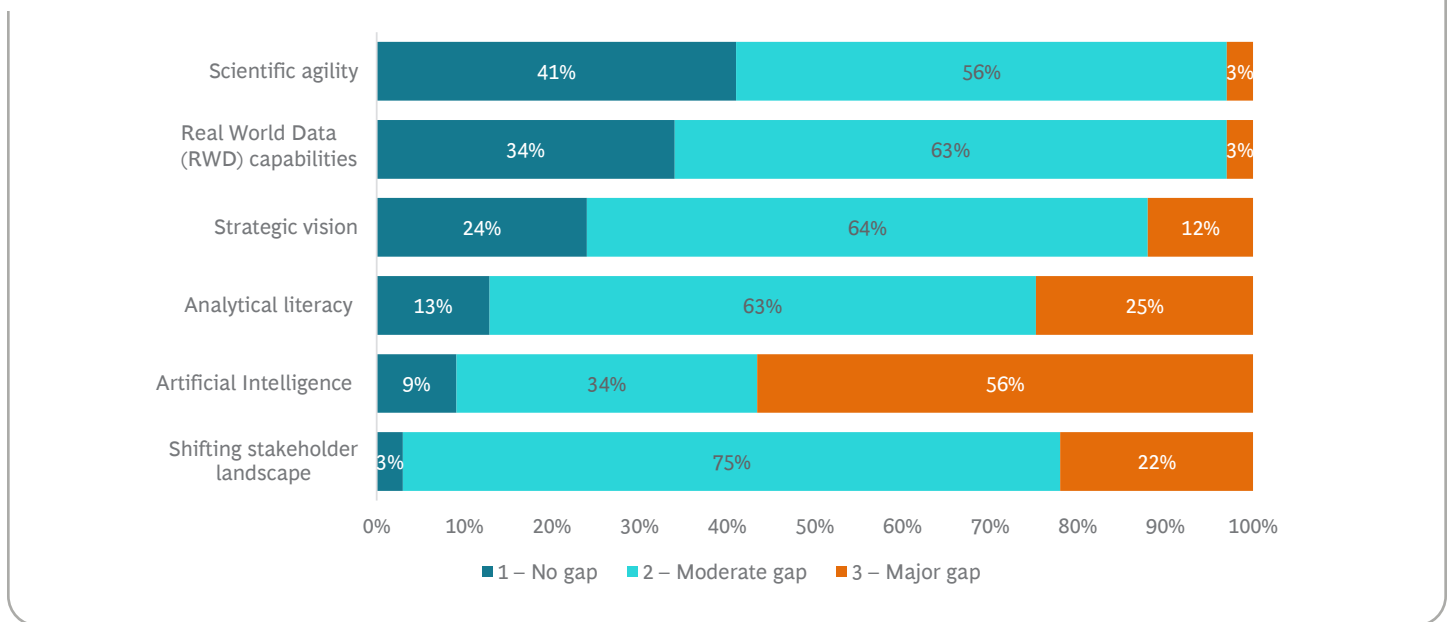
Internal barriers	External barriers
 <p><b>Lack of internal capabilities</b> Almost all Medical Leaders (88%)<sup>1</sup> agreed that the lack of capabilities is a barrier to the adoption of digital capabilities</p>	 <p><b>Data quality/availability issues</b> 3 out of 4 respondents (74%) see the data quality &amp; availability as a constraint limiting the adoption of digital/adv. analytics</p>
 <p><b>Lack of internal capacity</b> 4 out of 5 Medical Leaders (84%)<sup>1</sup> see the lack of capacity as a barrier for integrating digital capabilities within their organizations</p>	 <p><b>Regulatory challenges to use of data</b> 3 out of 4 Medical Leaders (74%)<sup>1</sup> refrain from adopting digital/adv. analytics due to regulatory challenges on data usage</p>
 <p><b>Legal challenges to the use of data</b> Most of MA org (79%)<sup>1</sup> recognize the legal challenges on data usage as a limit to the implementation of digital capabilities</p>	 <p><b>Lack of right tool/digital solution</b> Most of MA org (69%)<sup>1</sup> do not leverage digital/advanced analytics as they miss the right tool/digital solution for their needs</p>
<p>The lack of <b>leadership endorsement</b> is <b>not</b> viewed as an impediment to adoption of digital &amp; advanced analytics</p> <p><b>Stakeholder acceptance</b> and <b>vendor capabilities</b> are <b>not</b> viewed<sup>2</sup> as significant external challenge</p>	
<p><small>1. % of answers for either "Significant barrier" or "Moderate barrier" 2. Only 1 out of 10 respondents selected them as "Significant barriers"</small></p>	

**Q2.1-2 Which of the following are INTERNAL/EXTERNAL challenges or barriers your Medical Affairs organization faces to have greater adoption of digital/advanced analytics capabilities activities?**

## Upskilling Needs

Expanding on the concern about internal capabilities, Medical Leaders reported significant skill gaps among their organizations in AI and analytical literacy. Developing these competencies will be crucial for seizing digital opportunities. While many respondents have confidence in their scientific agility and RWD capabilities, they have some concerns about their organizations' ability to address the shifting stakeholder landscape.

**Exhibit 7 | AI, analytical literacy and shifting stakeholder landscape are the biggest upskilling needs for MA organizations**



**Q2.3 What are the biggest talent gap/upskilling needs in your MA organization?**

After the survey, 32 MA professionals came together at the Ambassador Alliance session to discuss opportunities and barriers to drive impact through digital/AI, use-cases and implementation. Here are key takeaways from the discussion including supplemental perspective<sup>1</sup>:

## Opportunities in Digital, Advanced Analytics, and AI

The Ambassadors expressed strong interest in a variety of use-cases and explored potential benefits:

- **Possible use cases:** There is enthusiasm for many use-cases ranging from MLR review to customer engagement to med info and some companies have started adopting these new, advanced solutions. More broadly, there are also opportunities in areas like advanced analytics, pharmacovigilance, and market/customer insight generation. Deciding which use-cases to pursue will require deliberate discussion on overall strategy and analyses of value and feasibility.

## Considerations for Successful Implementation of Digital, Advanced Analytics, and AI Solutions

Internal capabilities were broadly highlighted as a challenge that will need to be addressed through a range of support:

- **Internal vs. external implementation:** Ambassadors' consensus is that MA teams currently do not have the capability and capacity internally to implement these advanced solutions. External vendors will

get these efforts off the ground, and over time organizations will transition to in-house capabilities through in-licensing or by building them directly. Companies will have to manage cost, speed, customization, IT infrastructure and data ownership/quantity trade-offs throughout this progression.

- **Cross-functional engagement:** The nature of MA functions and the need for external support (and associated cost) make cross-functional collaboration and support within companies crucial for successfully implementing AI and advanced solutions. There is a clear need for an enterprise AI strategy not only to effectively implement solutions, but also to prioritize use cases that are most impactful, find synergies, and allocate resources accordingly.
- **Pace of change/implementation:** In deciding whether to pursue change incrementally or with large jumps, MA Leaders have a range of perspectives. Starting small allows MA teams to show return on quick wins which helps build support for bigger initiatives in addition to simply being easier to manage. However, some AI use-cases will result in inherently significant changes to the way people do their work. They will have to be acknowledged and implemented as such. In these cases, communication, coalition building, and change management will be particularly important.
- **Digital/Advanced analytics champions:** Given the complexity to operationalize these solutions, internal champions fluent in both digital and medical will be highly valuable in propelling initiatives forward, though finding such people may be challenging.

1. <https://www.bcg.com/publications/2023/biopharma-path-to-value-with-generative-ai>

## Best Practices for Internal Adoption of Digital, Advanced Analytics, and AI Solutions

Process changes are inherently challenging for organizations as they can be disruptive, and new technologies are apt to encounter skeptics. Overcoming these natural concerns and embracing a changing path to success will be key to advancing digital/AI initiatives.

- **Performance metrics:** Measuring impact is an important tool for building support within the organization. Tracking the right metrics (i.e., number of review cycles/ time in the case of MLR review automation), with a baseline for comparison, will be important for implementing and messaging these and follow-on initiatives.
- **Fostering adoption:** It is always a challenge to adopt change when it marks a break from what has made companies and individuals successful in the past. Giving people the skills that they need to be successful using new tools and processes and earning buy-in from senior leaders could be invaluable in overcoming this friction

## Summary and Key insights:

- **Significant opportunity to enhance Medical Affairs organizations through digitalization of customer engagement, evidence generation, and medical communications:** Most MA organizations are still using traditional tools rather than advanced AI technologies. This highlights a significant opportunity for digital transformation and there is high traction for applications including customer insights, evidence generation, and medical communication (i.e. with KOLs and HCPs).
- **Talent gaps, legal and regulatory hurdles, and data availability create digital transformation challenges:** Medical Leaders face several internal and external challenges in adopting digital and AI capabilities, including a lack of internal skills, legal and regulatory hurdles, and data availability issues. Overcoming these challenges will require strong governance, cross-organizational support, and substantial upskilling.
- **Need for internal champions, impact tracking, and investment in upskilling to support and advance MA digital and AI strategies:** Given the required investment, MA organizations interested in implementing advanced digital/ AI solutions should be thoughtful about how they message and cultivate collaborators within their organizations. Internal champions, impact tracking, and investment in upskilling will be crucial for building organizational alignment to support and advance MA digital/AI strategy.

# Special thanks to the Ambassadors and Guests who participated in the MAPS 2024 Global Annual Meeting discussion

AbbVie	Jeffrey Sallot, former Director, Compliance - Medical & HEOR
Amgen	Eve Thomas, former Executive Director, Medical Strategy and Operations
Astellas	Livia Medina, Sr Director Planning & Administration
Baxter	Mandy Corrigan, Sr. Manager, Medical Strategy, Worldwide Medical
Becton Dickinson	Margo Underwood, Associate Director Medical Affairs
BioNTech	Robert Kersting, Global Medical Affairs Lead, Oncology MSLs
bioMérieux	Hari Dwivedi, VP, Global Medical Affairs
BMS	Emma Rankine, Executive Director, Global Medical Excellence & Policy
Daiichi Sankyo	Thang Trieu, Sr Director, Head of Oncology Global Program Management & Operational Excellence · Global Oncology Medical Affairs
Eisai	Bagrat Lalayan, Executive Director, Global Medical Lead
Eisai	Vandana Grover, Head of Digital Strategy
Gilead	Ralph Rewers, Executive Director, Medical Sciences
Ipsen	Lucie Williams, Vice President Global Head of Medical Excellence
J&J Innovative Medicine	Jaime Blais, Head of Medical and Healthcare Excellence
Jazz Pharmaceuticals	Tamsin Naseem, Head of Global Medical Operations and Effectiveness
Kyowa Kirin	Dr. Deb Braccia, Global Medical Affairs Excellence Head
Leica Biosystems	Joseph Chiweshe, Senior Director, Medical and Scientific Affairs
Lilly	Karen King, Associate Director, Global Medical Affairs Launch Strategy
Lundbeck	Christine Castro, Director of Medical Affairs Excellence
Mallinckrodt	Brant Jarrett, Executive Director, Head of Field Medical Affairs
Merck & Co	Wendy Fraser, Executive Director, FM CoE & GST
Novartis	Kevin Voelker, National Director Virtual MSL and Field Medical Excellence
Otsuka	Walter Lawhorn, Senior Medical Science Liaison
Pfizer	Sagar Shah, Global Lead, Oncology Field Medical Excellence
Philips	Sanjay Gandhi, VP, Head Medical Affairs and Medical Safety
Regeneron	Carl de Luca, Director of Medical Affairs, Insights and Analytics
Sumitomo	Scott Flanders, Executive Director, Medical Affairs (Prostate Cancer)
Takeda	Masoud Nouri, Director Global Medical Evidence
Teva	Karen Jursca, Director, Operational Excellence
Travere	Rachel Couchenour, VP, Global Medical Affairs
Varian	Kate Pietrovito, Senior Director, Clinical Operations
Vertex	Mary Winkels, Director, Global Medical Affairs Training & Capabilities





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